FY12 ICANN Security, Stability & Resiliency Framework

2 May 2011

ICANN

One World

One Internet

ICANN is a global organization that coordinates the Internet's unique identifier systems for worldwide public benefit, enabling a single, global interoperable Internet.

ICANN's inclusive multi-stakeholder model and community-developed policies facilitate billions of computers, phones, devices and people into one Internet.

One World

One Internet

Security, Stability & Resiliency

Part A – ICANN's role in SSR and the Internet ecosystem

Executive Summary

The Internet has thrived as an ecosystem engaging many stakeholders organizing through collaboration to foster communication, creativity and commerce in a global commons.

The interoperability of the global commons depends on the operation and coordination of the Internet's unique identifier systems.

ICANN and the operators of these systems acknowledge that maintaining and enhancing the security, stability and resiliency of these systems is a core element of their collaborative relationship.

Security, Stability & Resiliency FY 12 Framework

- The SSR Framework outlines to a wide range of stakeholders how ICANN will contribute to global efforts in addressing security, stability and resiliency as challenges for the Internet, focused on its mission related to the Internet's unique identifiers.

- The framework describes the foundation for ICANN's role and boundaries to how it engages in this area; overviews the ecosystem, ICANN community and staff structure, strategic objectives and planned activities through the next operational year.

- The framework provides a roadmap as to how ICANN meets its responsibilities.

What is new in this document?

- Streamlined format, intended to be less repetitive – responding to comments raised on FY 10, FY 11 SSR Plans

- New Part A - Revised Foundational section describing Bylaws, Affirmation of Commitments and Strategic Plan references to SSR; detailing ICANN's role in SSR and its place in the Internet ecosystem

- Separate Part B Module for FY 12 showing operational priorities in SSR, status update on FY 11 activities

- Matrix showing areas of ICANN operations, coordination/ collaboration role, and areas of awareness of activities in the ecosystem led by others (including references to emerging threats and risks)

Components of a New Framework

Part A

- Foundational Section – Mission, Core Values, Affirmation

- Ecosystem and ICANN's role

Part B – Fiscal Year 12 Module

– Categories of Action

– Strategic Projects; Community Work

– Organizational/Staff Program Areas

Foundational – ICANN's Mission

The mission of ICANN is to coordinate, at the overall level,

the global Internet's

systems of unique identifiers,

and in particular, to ensure the stable and secure operation

of the Internet's unique identifier systems.

Source: ICANN Bylaws as amended 25 January 2011

Core Value #1

Preserving and enhancing the operational stability, reliability, security, and global interoperability of the Internet

Source: http://www.icann.org/en/general/bylaws.htm#I

Acknowledged in the Affirmation of Commitments: "global technical coordination of the Internet's underlying infrastructure – the DNS – is required to ensure interoperability"

Security, Stability, Resiliency

- Security – the capacity to protect and prevent misuse of Internet name and numbering systems.

- Stability – the capacity to ensure that the system operates as expected, and that users of the unique identifier systems have confidence that the system operates as expected.

- Resiliency – the capacity of the unique identifier systems to effectively respond to, react to and recover from malicious attacks and other disruptive activity.

Note – Definitions were from the 2009, 2010 SSR Plans.

Challenge

- Misuse of and attacks against the DNS and other Internet infrastructures challenge overall unique identifier security. Cyber security attacks target individuals, corporations, civil society and governments.

- As the frequency and sophistication of disruptive attacks and other malicious behaviour increases, ICANN and its community must continue to collaborate toward improving the resilience of the unique identifier systems and strengthen its capabilities.

Challenge

- Increasingly, the activity on the Internet reflects the full range of human motivations and conduct. In part, such activity reflects the open nature of the Internet that has made it successful, enabled innovation at its edge, and allowed for communication, creativity and commerce in a global commons.

- But openness has also come with vulnerabilities. For example, activity that takes advantage of opportunities to spoof or poison DNS resolution to misdirect computer connections of unwitting users is growing.

- Routing hijacks, address registration and ASN hijacks continue to grow. Denial of Service attacks disrupt users of all types.

Affirmation of Commitments

- 3(b) Preserve the security, stability and resiliency of the DNS

    - ICANN has adopted an SSR Plan, which will be regularly updated to reflect emerging threats to the DNS [including unique identifiers, not just DNS]

    - This will be reviewed no less than every three years

Affirmation of Commitments by the US Department of Commerce and ICANN, signed 30 September 2009

Affirmation of Commitments SSR Areas, Section 9.2

The review will pay particular attention to

- SSR matters, both physical and network, relating to secure and stable coordination of the DNS

- Ensuring appropriate contingency planning

- Maintaining Clear Processes

Affirmation of Commitments SSR Areas, Section 9.2 Reviews will assess

- The extent to which ICANN has successfully implemented its SSR plan

- The effectiveness of the plan to deal with actual and potential challenges and threats

- The extent to which the SSR plan is sufficiently robust to meet future challenges and threats to the security, stability and resiliency of the Internet DNS
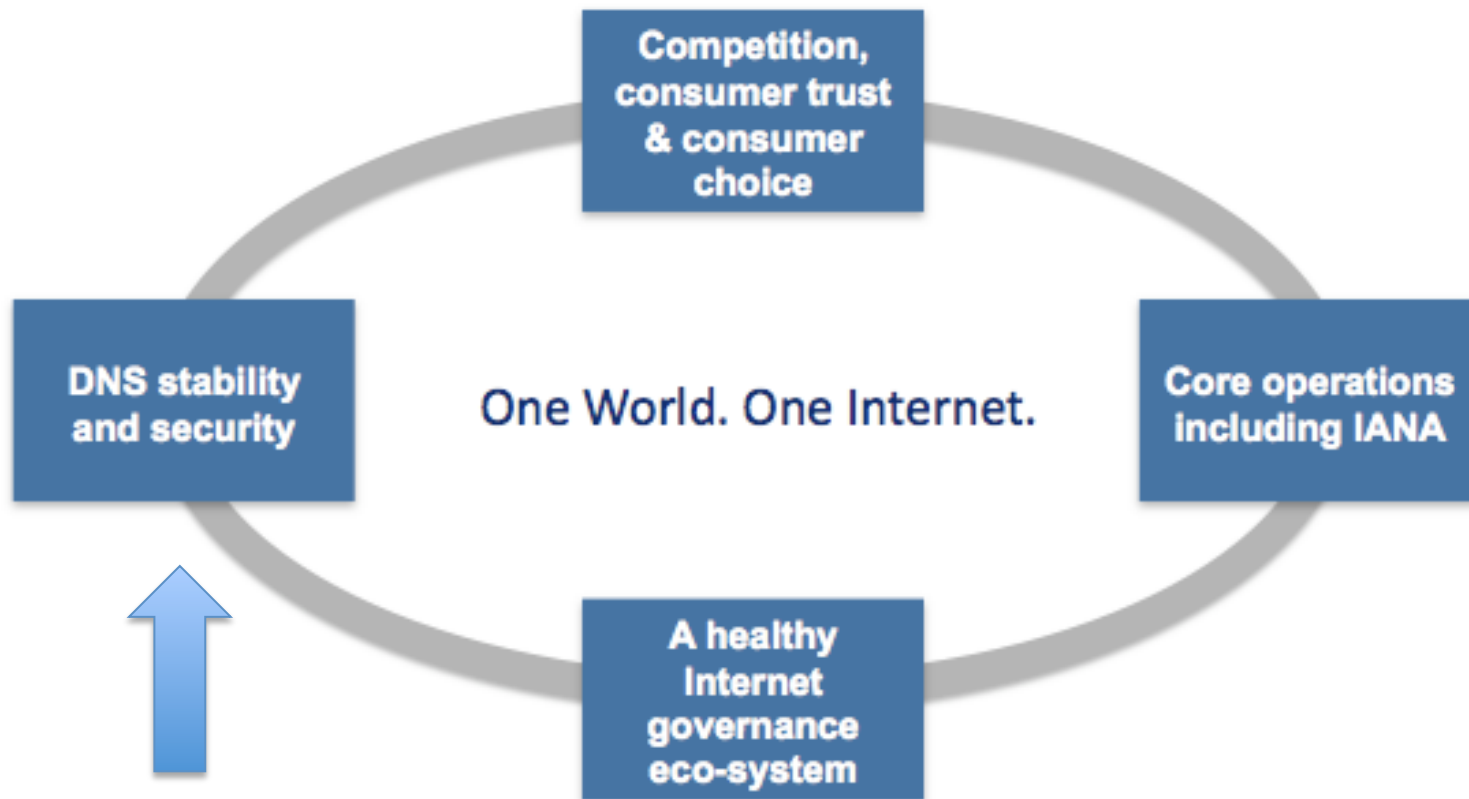
Previous SSR Plans

- May 2009 (covered FY 10) – accepted by the ICANN Board in Sydney, June 2009

  – https://www.icann.org/en/topics/ssr/ssr-draft-plan-16may09-en.pdf

  – http://www.icann.org/en/minutes/resolutions-26jun09.htm#1.7

- Sept 2010 (covered FY 11) – accepted by the ICANN Board in Cartagena, Dec 2010

  – https://www.icann.org/en/topics/ssr/ssr-plan-fy11-clean-23nov10-en.pdf

  – http://www.icann.org/en/minutes/resolutions-10dec10-en.htm#1.8

Timing for FY 12 Framework

- Initial review 1-15 Apr 2011 (SSAC and small expert group)

- Translation prep 19-1 May 2011

- Publication 2 May 2011 in 5 UN languages

- Comment period to 1 Jun 2011

- Community briefings Apr-May 2011

- Present to Board at ICANN 41 in Singapore, June 2011

2011-14 Strategic Plan Areas

See http://www.icann.org/en/strategic-plan/strategic-plan-2011-2014-28mar11-en.pdf

Competition, consumer trust & consumer choice

DNS stability and security

One World. One Internet.

Core operations including IANA

A healthy Internet governance eco-system

Components of a New Framework

Part A

- Foundational Section – Mission, Core Values, Affirmation

- Ecosystem and ICANN's role

Part B – Fiscal Year 12 Module

  – Community Work

  – Strategic Projects

  – Organizational/Staff Program Areas

Ecosystem & ICANN's role

- ICANN is charged to operate for the benefit of the Internet community as a whole. The public is a diverse and disparate collection of communities knitted together by the Internet and operating as a complex ecosystem.

- As the Internet continues to be a greater enabler of gross domestic product, government daily operations and global security activities, the profile of Internet governance has also elevated.

Ecosystem & ICANN's role

- ICANN acts in accordance with its bylaws in conducting multi-stakeholder, consensus-based processes, policies and programs, including those related to security, stability and resiliency.

- ICANN's role must focus on its core missions related to the unique identifier systems.

- ICANN's role includes participating in activities with the broader Internet community to combat abuse of the unique identifier systems. These activities will involve collaboration with governments combating malicious activity.

Ecosystem & ICANN's role

- ICANN does not play a role in policing the Internet or operationally combating criminal behaviour.

- ICANN does not have a role in the use of the Internet related to cyber-espionage and cyber war.

- ICANN does not have a role in determining what constitutes illicit conduct on the Internet.

Ecosystem & ICANN's role

- ICANN is not

  - A law enforcement agency

  - A court of law

  - Government agency

- ICANN cannot unilaterally

  - Suspend domain names

  - Transfer domain names

  - Immediately terminate a registrar's contract (except under limited circumstances

- ICANN is able to enforce its contracts on registries & registrars

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Ecosystem & ICANN's role

- ICANN Operations

  - Internal IT, L-root, DNS Operations, IANA, Compliance, String Evaluation, Meetings logistics, Administration & Finance, among other areas

- ICANN as a coordinator, collaborator, facilitator with the community

  - Policy coordination, secretariat support, subject matter expert involvement, contributor on protocol development, engagement with the greater Internet community, including the technical community

- ICANN as an observer on the activities of others in the global Internet ecosystem

Examples of SSR Activity & the Ecosystem

- Nov 2001- International public meeting focused on Security and Stability of the Internet Naming and Address Allocation System

- 2002 - Security and Stability Advisory Committee formed, continues to this day (http://icann.org/en/committees/security/)

- Supporting tech days with the ccTLD community at ICANN meetings since 2006

- Annual contingency exercises since 2008

- Conficker Working Group, 2008-present

- Global DNS SSR Symposia in 2009 (Georgia Tech), 2010 (Kyoto)

- Collaborated on signing of the root zone with DNSSEC in 2010 (http://root-dnssec.org)

Responsibilities

- ICANN is responsible for Internet Assigned Numbers Authority (IANA) functions operations. Ensuring secure, stable and resilient operation of the DNS root zone function has been, and will remain, the highest priority.

- ICANN is an enabler for the DNS and addressing community efforts to strengthen SSR foundations of the system. Such efforts will include supporting the development of protocols and supporting technologies to authenticate Internet names and numbers.

- ICANN is an enabler and facilitator of the SSR activities conducted by DNS registries, registrars and other members of the community.

Responsibilities

- ICANN is responsible for the secure, stable and resilient operation of its own assets and services.

    - ICANN maintains an internal Computer Incident Response Team, https://www.icann.org/en/cirt/, and has joined FIRST

    - Supports annual updating of ICANN security plans and effective security controls and procedures

    - Ensures internal staff have strong skills, appropriate tools and are current with security threats and best practices

    - This work includes stable, continuous L-root operations; DNSSEC key management

Ecosystem Layers

- Global Community – those who rely on the secure & stable functions of the Internet's unique identifier systems, but may not be aware of or participate in ICANN

- ICANN Community – greater community of actors involved in ICANN programs, processes and activities who drive the multi-stakeholder, private-sector led policy development model for the benefit of global Internet users

- ICANN Organizational Operations/Staff – the operational structures, processes and supporting staff of ICANN as an organization

Ecosystem Participants

- Technical Community

- Infrastructure Providers

- Governments & NGOs

- Business

- Noncommercial & Academic

- Users/At-Large

- Law Enforcement & Operational Security

ICANN Organization

ICANN Multi-Stakeholder Model
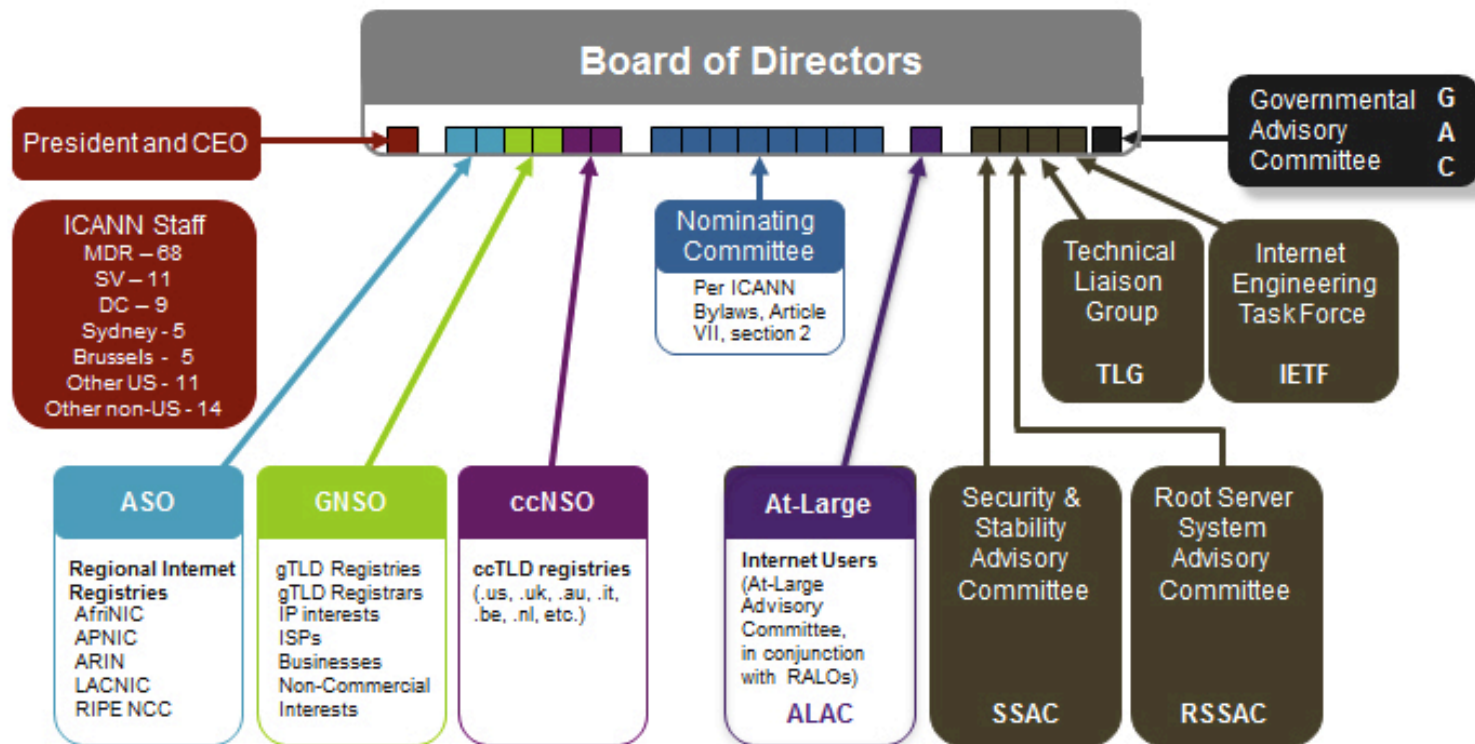
ICANN Community Structures

- Advisory Committees advise the ICANN Board, provide input into policy development processes and support community engagement on issues under consideration.

At Large Advisory Committee	Governmental Advisory Committee
Security & Stability Advisory Committee	Root Server System Advisory Committee
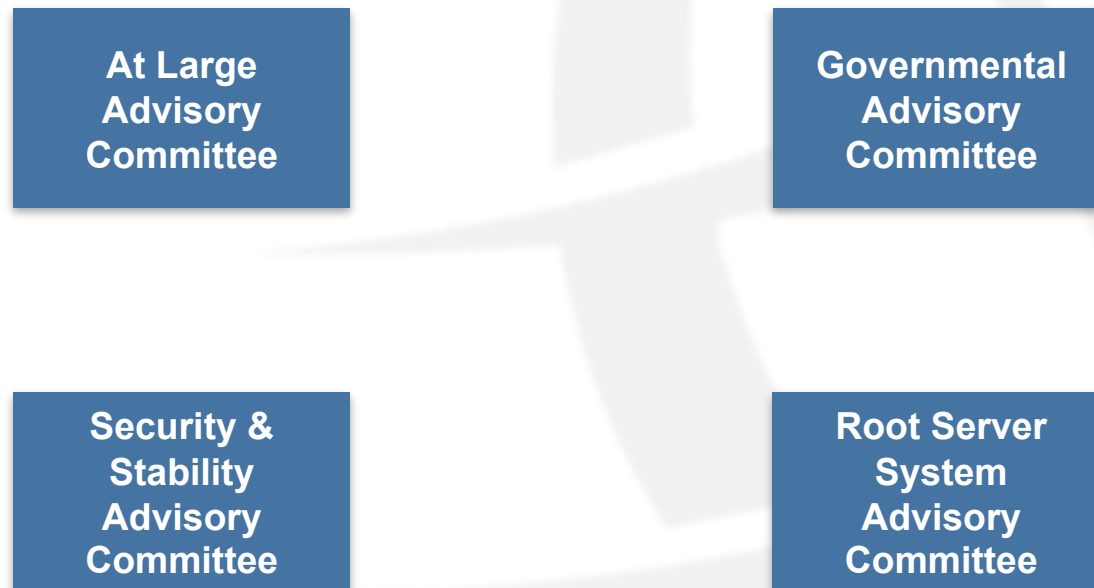
Security & Stability Advisory Committee

- Advises the ICANN community and Board on matters relating to the security and integrity of the Internet's unique identifiers.

    – Chair – Patrik Fältström (Cisco)

    – Vice Chair – James Galvin (Afilias)

    – Members represent a broad spectrum of the technical & security expert community (see http://www.icann.org/en/committees/security/)

- SSAC Work Plan for 2011:
  http://www.icann.org/en/committees/security/ssac-activity-report-28feb11-en.pdf

- SSAC Documents:
  http://www.icann.org/en/committees/security/ssac-documents.htm

ICANN Community Structures

- Supporting Organizations

Address Supporting Organization	Generic Names Supporting Organization	Country Code Names Supporting Organization

- Stakeholder Groups

- Constituencies

Agreements, Partnerships

- Affirmation of Commitments – US Department of Commerce

- IANA functions contract

- Internet Engineering Task Force MOU; Internet Architecture Board

- Number Resource Organization (NRO) MOU

- ccTLD Registry, Sponsorship, Accountability Frameworks and Exchange of Letters

- gTLD Registry Agreements

- Registrar Accreditation Agreements

- Escrow Agreements

Agreements, Partnerships

- UNESCO

- Russian Association of Networks and Services (RANS)

- Lomonosov Moscow State University Institute for Information Security Issues (IISI)

- Inter-American Telecommunications Commission of the Organization of American States (CITEL)

- African Telecommunications Union

- UN-ESCWA

- Commonwealth Telecommunications Organization

- Pacific Islands Telecommunications Association

Top-Level Domains (as of 19 April 2011)
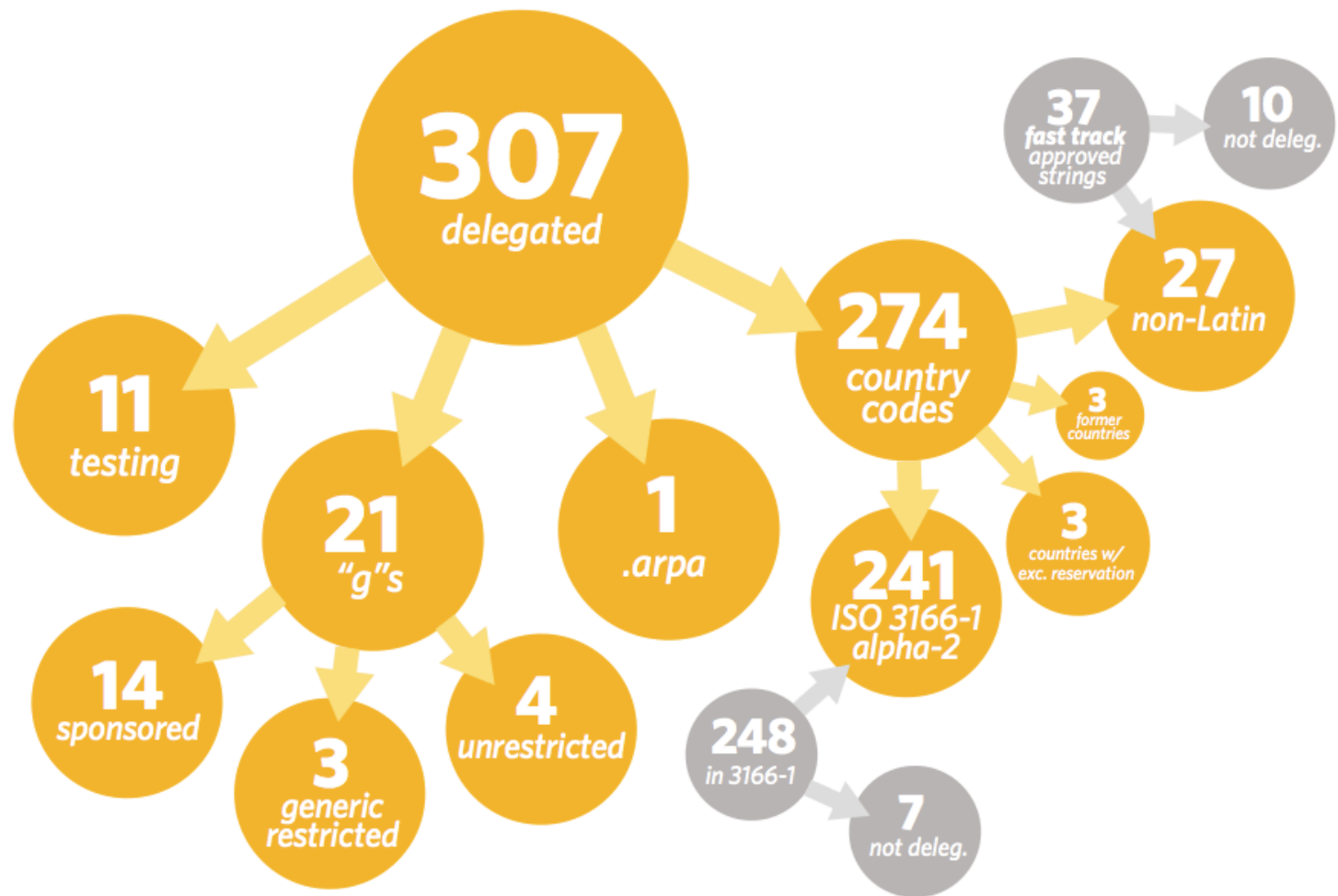
Contracted Parties

Parties in the domain registration process must work together to ensure decisions made related to the global technical coordination of the DNS are made in the public interest and are accountable and transparent.
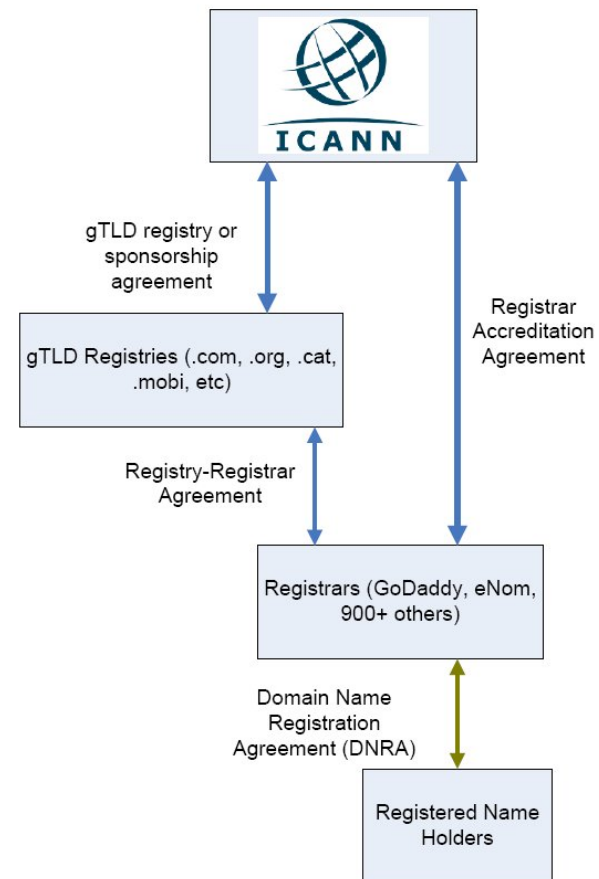
Non Contracted Partners

- Internet Society (ISOC)

- Network Startup Resource Center (NSRC)

- Regional TLD organizations (AfTLD, APTLD, LACTLD, CENTR)

- UN Group of Experts on Geographic Names (UNGEGN)

- International Telecommunication Union (ITU), World Wide Web Consortium (W3C), European Telecommunications Standards Institute (ETSI)

- Domain Name Dispute Resolution Providers

  - Asian Domain Name Dispute Resolution Centre

  - Czech Arbitration Court

  - World Intellectual Property Organization

  - National Arbitration Forum

Non Contracted Partners

- Regional Internet Registries (AfriNIC, APNIC, ARIN, LACNIC, RIPE NCC)

- International Organization for Standardization (ISO)

- Network Operator Groups

- DNS-OARC

- European Network and Information Security Agency (ENISA)

- Internet Governance Forum

- Forum for Incident Response and Security Teams (FIRST)

Others in the Ecosystem

- IT Sector Coordinating Council

- Anti Phishing Working Group

- Messaging Anti Abuse Working Group

- Security Trusted Communities

- Computer Emergency Response Teams

- Research & Academic institutions

- Law enforcement entities

Note – this list is representative and not intended to cover the full field of ecosystem participants

ICANN Organization/Staff

- Executive

- Human Resources/Administrative/Finance

- Legal and Compliance

- Global Partnerships/Government Affairs

- Security

- IANA, DNS Operations (includes L-root) and IT

- Communications, Marketing, Meetings

- Policy Development

- Stakeholder Relations

Basic organizational structure – globally distributed staff supporting thousands of volunteers

Global Reach to Support Community

- Engaging with community & supporting SSR activities from ICANN office locations

Marina del Rey, California	**Brussels, Belgium**	**Sydney, Australia**
Palo Alto, California	**Washington, DC**	**Home Office Locations Worldwide**

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More Information: icann.org/en/security

Continue to Part B – FY 12 SSR Module